

REMARKS

Applicant has cancelled claim 5, without prejudice or disclaimer of its subject matter, and amended claims 1, 4, and 6-13 to more appropriately define the present invention. Claims 1-4 and 6-16 remain pending and under current examination.

Regarding the Office Action:

In the Final Office Action, the Examiner rejected claims 1, 4-8, and 14-16 under 35 U.S.C. § 103(a) as being unpatentable over Nam et al. (U.S. Patent Application Publication No. 2002/0109217) ("Nam") in view of Bura (U.S. Patent No. 4,489,487) ("Bura") and either Cobbley et al. (U.S. Patent Application Publication No. 2004/0154956A1) ("Cobbley") or alleged "admitted prior art" (specification par. [0008]) ("AAPA"); rejected claims 2, 3, and 12 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura and either Cobbley or AAPA as applied to claims 1 and 6 and further in view of Sasaki et al. (U.S. Patent No. 6,294,439) ("Sasaki"); rejected claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura and either Cobbley or AAPA as applied to claims 1 and 6 and further in view of Rogowski (U.S. Patent No. 5,684,707) ("Rogowski"); rejected claim 10 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura and either Cobbley or AAPA as applied to claims 1 and 6 and further in view of either Wojewnik, et al. (U.S. Patent No. 6,640,434) ("Wojewnik") or Varaprasad et al. (U.S. Patent No. 5,910,854) ("Varaprasad"); rejected claim 11 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura and either Cobbley or AAPA as applied to claims 1 and 6 above and further in view of either Wojewnik or Varaprasad as applied to claim 10 and further in view of Rogowski; rejected claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura and either Cobbley or AAPA and Sasaki applied to claim 12 and further in view of Rogowski; and objected to the

specification for informalities. Applicant traverses the objection and rejections for the following reasons.¹

Regarding the Advisory Action:

In the Advisory Action, the Examiner indicated that the Amendment after Final, filed on April 15, 2005, overcame the objections to the specification. Further, the Examiner entered the amendments presented in the Amendment after Final for the purposes of an appeal. Unfortunately, the Examiner maintained the rejections of record.

On the Continuation Sheet of the Advisory Action, the Examiner alleged that Applicant “argue[d] each of the references separately rather than arguing the references as combined.” Despite the Examiner’s contention, Applicant’s previous arguments do not attack each reference individually. In the Amendment after Final, Applicant pointed out deficiencies in *each* of the cited references, and then noted that “[t]he Examiner’s application of the secondary references in an attempt to cure Nam’s deficiencies still fails to establish *prima facie* obviousness.” The compounding deficiencies occurring when each of the cited references are combined together clearly resulted in the failure of *their combination* to establish *prima facie* obviousness.

Rejection of Claims 1, 4, and 6-8 under 35 U.S.C. § 103(a):

Applicant traverses the rejection of claims 1, 4, and 6-8 under 35 U.S.C. § 103(a) as being unpatentable over Nam in view of Bura and either Cobbley or AAPA. Applicant respectfully disagrees with the Examiner’s arguments and conclusions. A *prima facie* case of obviousness has not been established.

“To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the

¹ The Office Action contains statements characterizing the related art, case law, and the claims. Regardless of whether any such statements are specifically identified herein, Applicant declines to automatically subscribe to any statements in the Office Action.

references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)." M.P.E.P. § 2142, 8th Ed., Rev. 2 (May 2004), p. 2100-128.

A *prima facie* case of obviousness has not been established because, among other things, neither Nam, Bura, Cobbley nor AAPA, nor their combination, teaches or suggests each and every element of Applicant's claims.

To begin, Nam does not disclose each and every element of Applicant's claimed invention, despite the Examiner's allegations. Independent claim 1, as amended, recites, in part:

sectioning semiconductor elements from a semiconductor wafer to provide at least first and second semiconductor elements, which has an element region formed on its front surface, while keeping the sectioned first and second semiconductor elements in a state held by a holding member;

picking up the sectioned first and second semiconductor elements from the holding member by holding them with an absorption collet in order of their sectioning;

cutting an element adhesive film held by a porous absorption member according to the shape of one of the semiconductor elements to form a sectioned element adhesive film;

sticking the sectioned element adhesive film held by the porous absorption member to each of the back surfaces of the picked-up first and second semiconductor elements held by the absorption collet in order of their sectioning;

sending the first and second semiconductor elements stuck to the sectioned element adhesive film above a semiconductor device forming base material in order of their sectioning;

Similarly, independent claim 6, as amended, recites

a pickup section for picking up sectioned first and second semiconductor elements by holding them with an absorption collet in order of their sectioning from a semiconductor wafer which has sectioned semiconductor elements being held by a holding member;

a film cutting section for cutting an element adhesive film held by a porous absorption member according to the shape of one of the semiconductor elements to form a sectioned element adhesive film;

a film sticking section for sticking the sectioned element adhesive film held by the porous absorption member to each of the back surfaces of the picked-up first and second semiconductor elements held by the absorption collet;

a moving section for moving the first and second semiconductor elements stuck to the sectioned element adhesive film above a semiconductor device forming base material in order of their sectioning; and

an element adhesion section for adhering the first semiconductor element to the semiconductor device forming base material by the element adhesive film and adhering the second semiconductor element on the first semiconductor element by the element adhesive film.

In contrast to the claimed invention, Nam teaches a first chip 64 and a second chip 72 bonded on lead frame 60. *See Nam*, Fig. 4 and corresponding description. However, the first chip 64 is bonded directly on lead frame 60, and second chip 72 is bonded to die pad 66 through nonconductive adhesive tape 68. Nam's use of nonconductive adhesive tape 68 placed on bonding pad 66, followed by adhering second chip 72 on nonconductive adhesive tape 68 clearly does not constitute Applicant's claimed

sticking the sectioned element adhesive film held by the porous absorption member to each of the back surfaces of the picked-up first and second semiconductor elements held by the absorption collet in order of their sectioning;

sending the first and second semiconductor elements stuck to the sectioned element adhesive film above a semiconductor device forming base material in order of their sectioning;

adhering the first semiconductor element to the semiconductor device forming base material by the element adhesive film (claim 1);

or

a film cutting section for cutting an element adhesive film held by a porous absorption member according to the shape of one of the semiconductor elements to form a sectioned element adhesive film;

a film sticking section for sticking the sectioned element adhesive film held by the porous absorption member to each of the back surfaces of the picked-up first and second semiconductor elements held by the absorption collet;

a moving section for moving the first and second semiconductor elements stuck to the sectioned element adhesive film above a semiconductor device forming base material in order of their sectioning; and

an element adhesion section for adhering the first semiconductor element to the semiconductor device forming base material by the element adhesive film and adhering the second semiconductor element on the first semiconductor element by the element adhesive film (claim 6).

Nam's adjacent placement of first chip 64 and second chip 72 on die pad 66 is clearly different from the claimed invention.

Furthermore, Nam teaches that "[a]fter adhesive tape 68 is placed on die pad 66 of lead frame 60, step 35 attaches second chip 72 to die pad 66 through adhesive tape 68. A die pick-up tool 54 picks up second chip 72 from a chip provider, such as a wafer table 56, and places second chip 72 on adhesive tape 68." Nam, par. [0030]. Adhesive tape 68 is *first* placed on the die pad of the lead frame, *before* movement of the first and second chips. *See also* Nam, Fig. 4. Therefore, Nam never moves first chip 64 or second chip 72 once stuck to the adhesive tape 68. This clearly does not constitute Applicant's claimed "sticking the sectioned element adhesive film held by the porous absorption member to each of the back surfaces of the picked-up first and second semiconductor elements held by the absorption collet in order of their sectioning," as recited in claim 1, and "a film sticking section for sticking the sectioned element adhesive film held by the porous absorption member to each of the back surfaces of the picked-up first and second semiconductor elements held by the absorption collet," as recited in claim 6.

Moreover, the Examiner has not shown that Nam teaches or suggests Applicant's claimed "picking up the sectioned first and second semiconductor elements from the holding member by holding them with an absorption collet in order of their sectioning; *cutting an element adhesive film held by a porous absorption member* according to the shape of one of the semiconductor elements to form a sectioned element adhesive film" (claim 1, emphasis added), or

a pickup section for picking up sectioned first and second semiconductor elements by holding them with an absorption collet in order of their sectioning from a semiconductor wafer which has sectioned semiconductor elements being held by a holding member;

a film cutting section for cutting an element adhesive film held by a porous absorption member according to the shape of one of the semiconductor elements to form a sectioned element adhesive film (claim 6, emphasis added).

Turning to Bura's disclosure, the Examiner applied Bura to teach "that applying adhesive to the semiconductor element rather than the base material is advantageous because the semiconductor element provides an accurate [gauge] for how much adhesive to apply (column 2, lines 13-17)" (Final Office Action, p. 2). While Bura does teach applying a double-sided adhesive tape to a surface of a chip (col. 3, lines 39-57), none of Bura's embodiments teach or suggest "adhering the second semiconductor element on the first semiconductor element by the element adhesive film," as recited in claims 1 and 6. For at least this reason, Bura fails to cure Nam's deficiencies pertaining to independent claims 1 and 6.

Turning to Cobbley's disclosure and AAPA, the Examiner applied Cobbley and AAPA to teach "that stacking of semiconductor elements improves the packing density of a semiconductor board so that the boards can have a smaller footprint" and "the semiconductor elements are stacked to each other before being applied to the board" (Final Office Action, p. 3). Applicant submits that Cobbley and AAPA do not cure Nam's deficiencies.

Moreover, while Cobbley does disclose that "[g]enerally, stacked die packages, such as those illustrated in FIGS. 2 and 3, are built from the surface of the substrate upward. [...] a first die is stacked on top of the substrate and adhesively attached to the substrate. Next, a second die is stacked on top of the first die and adhesively attached to the substrate" (par. [0024]), and AAPA par. [0008] discloses that "[t]o form the multiple layers, the upper semiconductor element 6 is occasionally stacked on the lower semiconductor element 6 in such a way that the upper one protrudes from the outside shape of the lower one," Applicant submits that Cobbley and AAPA actually teach away from the claimed invention (and the other cited references). As such, one of ordinary skill in the art would not have looked to Cobbley or AAPA to combine them with Nam.

In particular, Cobbley's subsequent paragraph discloses "several problems exist with the prior design techniques [quoted above]" (par. [0025]). Cobbley then teaches the "advantage of the technique of forming the entire stack prior to attaching it to the substrate" (par. [0032]), which teaches away from Nam's adjacent placement of first and second chips (Nam, Fig. 4), Bura's adjacent placement of chips (Bura, Fig. 3), and the claimed invention. Moreover, AAPA teaches that when the upper semiconductor element is stacked on the lower semiconductor element such that "the upper one protrudes from the outside shape of the lower one," "[i]f the back surface of the semiconductor element 6 has chippings, the chippings are expanded by a load applied during the wiring bonding, possibly resulting in cracking of the semiconductor element 6" (par. [0008]). Thus, the Examiner's citation to Cobbley and AAPA does not cure the deficiencies of the other cited references, and one of ordinary skill in the art would not have been motivated to combine Cobbley and AAPA with the other cited references.

The Examiner's application of the secondary references in an attempt to cure Nam's deficiencies still fails to establish *prima facie* obviousness. The Examiner's application of Bura, Cobbley, and AAPA (Final Office Action, pp. 2-3) still does not remedy Nam's deficiencies pointed out herein. That is, Nam, Bura, Cobbley, and AAPA, taken alone or in combination, fail to teach or suggest at least the above-quoted elements of Applicant's independent claims 1 and 6.

Furthermore, in response to the Examiner's allegation, in the Advisory Action, that "applicant argues each of the references separately rather than arguing the references as combined. This is unpersuasive because it is the references as combined that are being used to reject the claims," Applicant submits that the arguments presented in the Amendment after Final, and the arguments presented herein, do not attack each reference individually. Each reference was treated separately to address the Examiner's arguments, followed by a determination that the combination of the references fails to establish *prima facie* obviousness. For the record,

Applicant points out that he has considered Nam, Bura, Cobbley, and AAPA *together*, so the Examiner's allegation has no merit. Applicant has pointed out the deficiencies of the combination of Nam, Bura, Cobbley, and AAPA.

Finally, Applicant points out to the Examiner that it "is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." *See In re Wesslau*, 147 U.S.P.Q. 391 (C.C.P.A. 1965). *See also* M.P.E.P. § 2141.02. The Examiner's combination of Nam, Bura, Cobbley, and AAPA is not proper, because the Examiner is picking out only so much of each reference to support his position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.

Accordingly, the Examiner's reliance on these references fails to establish *prima facie* obviousness. Independent claims 1 and 6 are allowable, and dependent claims 4, 7, and 8 are also allowable at least by virtue of their respective dependence from allowable base claim 1 or 6. Therefore, the improper 35 U.S.C. § 103(a) rejection should be withdrawn.

Rejection of Claims 2, 3, and 12 under 35 U.S.C. §103(a) (Nam/Bura/Cobbley/AAPA/Sasaki):

Rejection of Cl. 9 under §103(a) (Nam/Bura/Cobbley/AAPA/Rogowski):

Rejection of Cl. 10 under §103(a) (Nam/Bura/Cobbley/AAPA/Wojewnik/Varaprasad):

Rejection of Cl. 11 under §103(a) (Nam/Bura/Cobbley/AAPA/Wojewnik/Varaprasad/Rogowski):

Rejection of Claim 13 under 35 U.S.C. § 103(a) (Nam/Bura/Cobbley/AAPA/Sasaki/Rogowski):

Applicant respectfully traverses these rejections of dependent claims 2, 3, and 9-13 under 35 U.S.C. § 103(a). Applicant disagrees with the Examiner's arguments and conclusions. A *prima facie* case of obviousness has not been established.

These five rejections address dependent claims 2, 3, and 9-13, and the Examiner applied the additional cited references (indicated above) only to specific elements of these dependent claims. *See* Final Office Action, pp. 4-7. Dependent claims include each and every element recited in the base claim. *See* M.P.E.P. § 608.01(n)(III). As noted above, Sasaki, Rogowski, Wojewnik, and Varaprasad added to Nam, Bura, Cobbley, or AAPA, taken alone or in combination do not teach each and every element of independent claims 1 and 6. Thus, the five 35 U.S.C. § 103(a) rejections of the dependent claims must also fail.

The Examiner has therefore not met at least one of the essential criteria for establishing a *prima facie* case of obviousness. Thus, dependent claims 2, 3, and 9-13 are allowable for the reasons presented herein, and at least by virtue of their respective dependence from allowable base claim 1 or 6. Therefore, the improper 35 U.S.C. § 103(a) rejection of claims 2, 3, and 9-13 should be withdrawn.

Conclusion:

In view of the foregoing, Applicant requests reconsideration of the application. Pending claims 1-4 and 6-16 are in condition for allowance, and Applicant requests a favorable action.

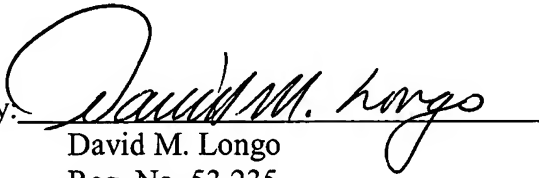
If there are any remaining issues or misunderstandings, Applicant requests the Examiner telephone the undersigned representative to discuss them.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: June 9, 2005

By: 
David M. Longo
Reg. No. 53,235

/direct telephone: (202) 408-4489/